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FORM 9

COMMONWEALTH OF AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:

"AN INFLATABLE PIPE TEST PROBE "

This invention is described in the following statement:

## AN INFLATABLE PIPE TEST PROBE

### FIELD OF THE INVENTION

THIS INVENTION relates to an inflatable pipe test probe suitable for hydrostatic testing of pipes for leaks and simultaneous interior examination of the pipe using a camera.

### SUMMARY OF THE INVENTION

In one aspect the present invention resides in a pipe test probe comprising an inflatable seal and camera assembled in series with the camera at the head, the inflatable seal being generally elongate and able to pass down a pipe and deform to pass around corners in the pipe and upon inflation to seal the pipe for static test purposes.

Typically the inflatable seal comprises a cylindrical elastic bladder sealed airtight at opposite ends and being biased to expand medially by reason of medially thinned wall section or sections. Preferably the wall has protruding sealing ribs distributed along its length. The sealing ribs are preferably evenly spaced.

Preferably the bladder is designed to suit different pipe sizes and to increase the life of the bladder is in use inflated to a predetermined pressure and size at that pressure. In one form suited to a 100 mm pipe, the bladder has a 40 mm outside diameter in its relaxed state and is inflatable to 114 mm at a maximum pressure of between 10 psi to 15 psi. In the case of 150 mm pipe, the outside diameter would be 60 mm typically and 164 mm outside diameter when inflated to the 10 psi to 15 psi pressure. Any suitable elastic material may be used, particularly those materials

suitable to repeated inflation and deflation in a hydrostatic pipe testing environment.

### BRIEF DESCRIPTION OF THE DRAWINGS

In order that the present invention may be more readily understood and put  
5 into practical effect, reference will now be made to the accompanying drawings  
which illustrate one preferred embodiment of the invention as suited to 100 mm  
pipe testing.

Figure 1 is a schematic drawing illustrating the probe being used;

Figure 2 is a part cut away view illustrating the probe in position in a pipe  
10 prior to inflation; and

Figure 3 is a drawing illustrating the probe in position, inflated and sealing  
the pipe.

### METHOD OF PERFORMANCE

Referring to the drawings and initially to Figure 1, there is illustrated a test  
15 probe 10 according to the invention where an operator 11 manually feeds the probe  
10 along a pipe 12 by reason of an air tube 13 and CCTV cable 14. The operator  
may view the output from camera head 15 on the probe 10 via screen 16. As can  
be seen in Figure 1, the probe 10 has a elongate flexible body 16 so that it may  
deform to pass around corners in the pipe 12 as typically illustrated at 17. This  
20 construction of the probe will be described in greater detail in relation to the  
following figures.

In order to test the pipe 12, the probe 10 is positioned at a desired position  
in the pipe 12 and inflated to perform a static test by back filling the pipe 12 from

the probe and progressively testing for leakage by stepwise inflation and deflation of the probe 10 as it is withdrawn using normal hydrostatic test procedures.

Referring now to Figures 2 and 3, the probe 10 is illustrated in greater detail and like numerals have been used to illustrate like features. The probe 10 comprises the camera head 15 and elongate body 16 which comprises in this case an elastic bladder 18 designed for testing 100mm pipe. The size will vary for different pipe sizes. The bladder 18 has thickened marginal edge portions 19 and 20 at opposite ends so that when inflated it preferentially expands medially as shown in Figure 3. At opposite ends of the bladder, stainless steel rigid couplings 21 and 22 rigidly secure the fittings for the camera head 15 and the cable 14 and air tube 15 to the bladder 18 by clamping rings 22 and 23 respectively. The bladder has sealing ridges 24 distributed evenly along its length.

In the illustrated embodiment the bladder 18 has an uninflated outside diameter of 40 mm and may be expanded to a designed external diameter of 114 mm at 10psi to 15 psi inflation pressure. This would effectively seal the 100 mm pipe in use.

Whilst the above has been given by way of illustrative example of the present invention, many variations and modifications thereto will be apparent to those skilled in the art without departing from the broad ambit and scope of the invention as herein set forth.

DATED this 4<sup>th</sup> day of September 2002

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By his Patent Attorneys  
INTELLPRO

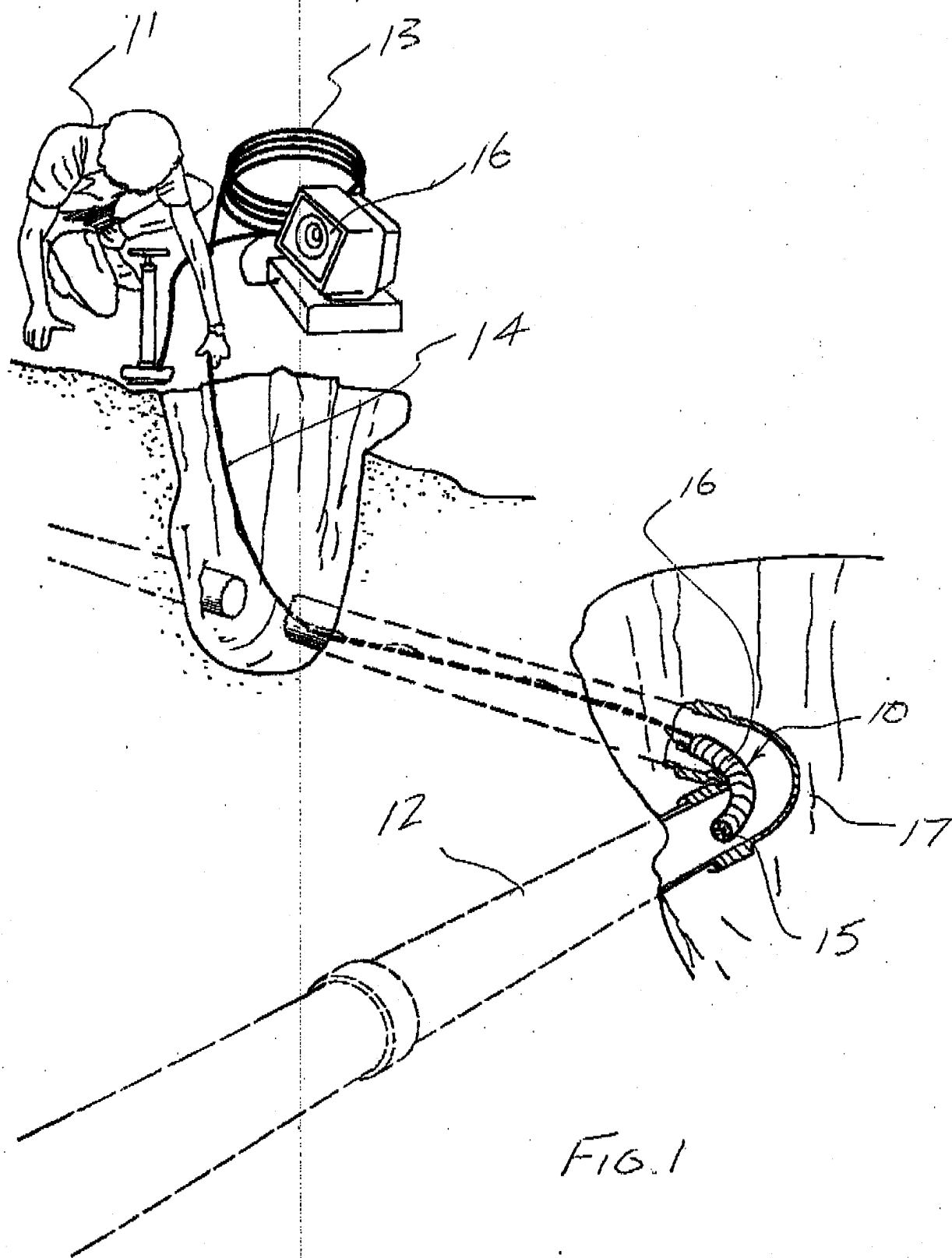


FIG. 1

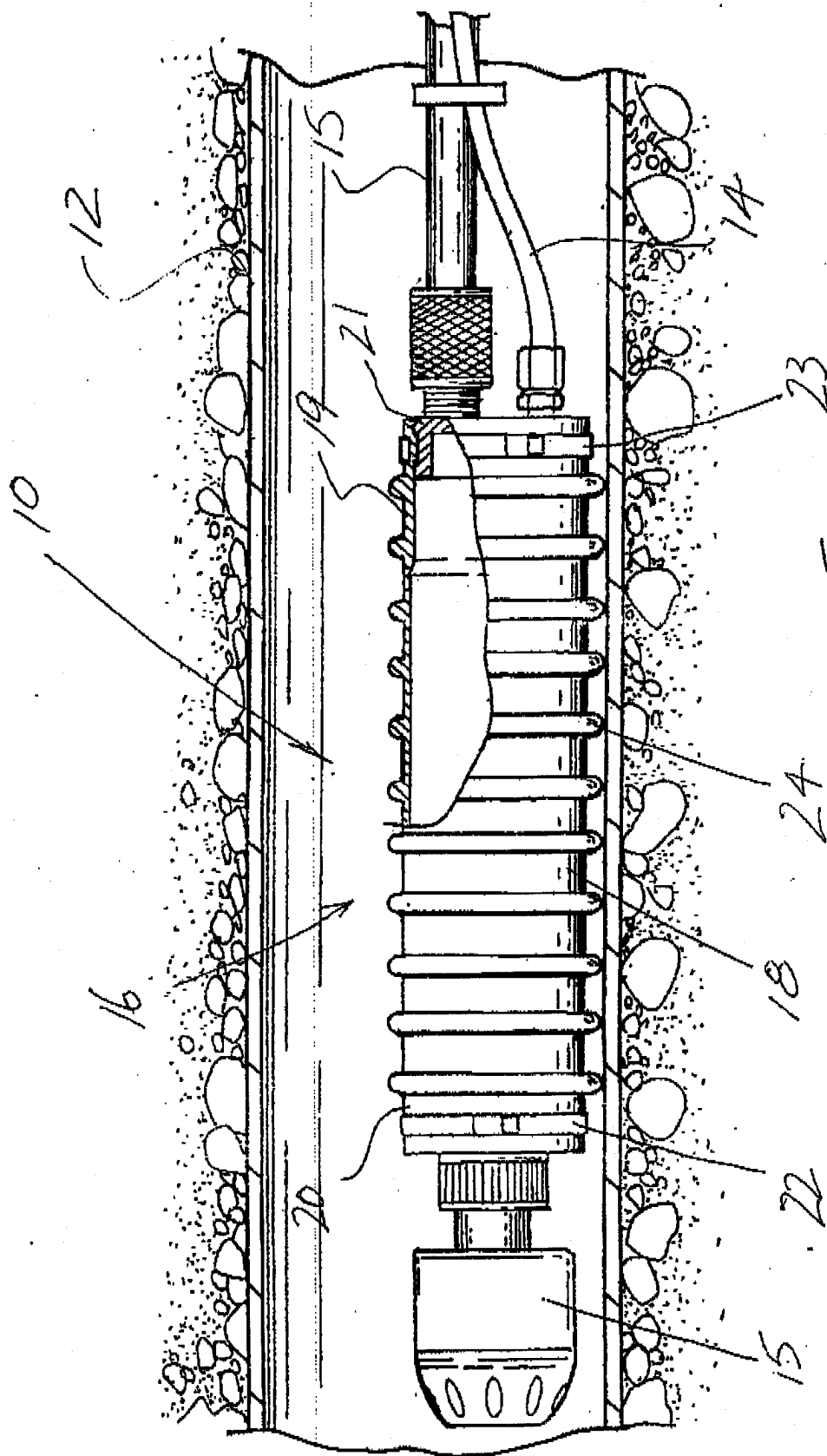


FIG. 2

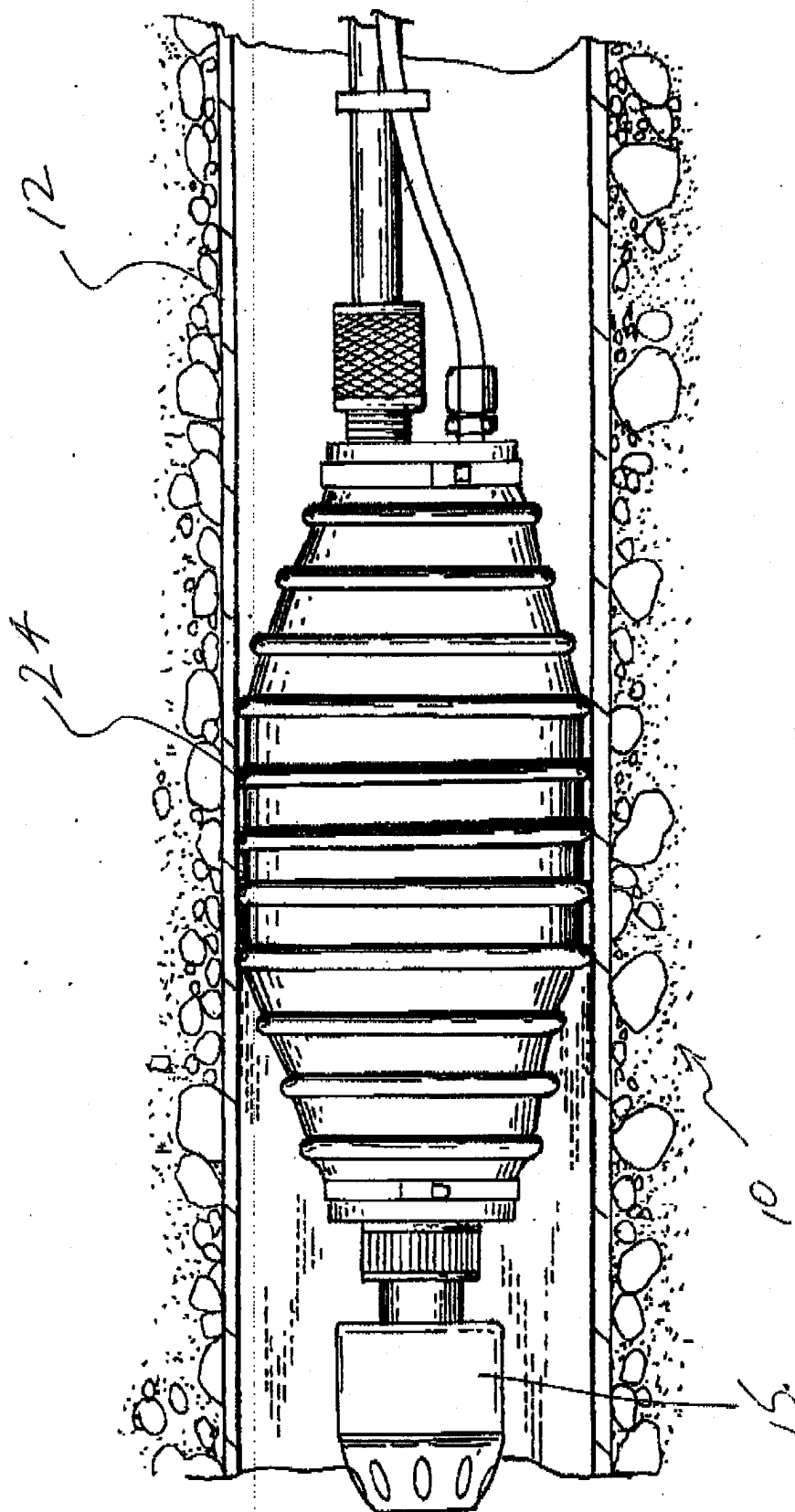


FIG. 3